

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
27 May 2004 (27.05.2004)

PCT

(10) International Publication Number  
**WO 2004/043309 A1**

(51) International Patent Classification<sup>7</sup>: **A61F 6/04**

(21) International Application Number:  
PCT/SE2003/001711

(22) International Filing Date:  
6 November 2003 (06.11.2003)

(25) Filing Language: Swedish

(26) Publication Language: English

(30) Priority Data:  
0203344-7 13 November 2002 (13.11.2002) SE

(71) Applicant (for all designated States except US): **JS SÄKERHETSSYSTEM AB** [SE/SE]; Box 3214, S-103 64 STOCKHOLM (SE).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **SAMUELSSON, Bo E.** [SE/SE]; Tullgårdsgatan 28, 2tr, S-116 68 STOCKHOLM (SE).

(74) Agents: **HASSELGREN, Joakim et al.**; Kransell & Wennborg AB, Box 27834, S-115 93 STOCKHOLM (SE).

(81) Designated States (national): AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE

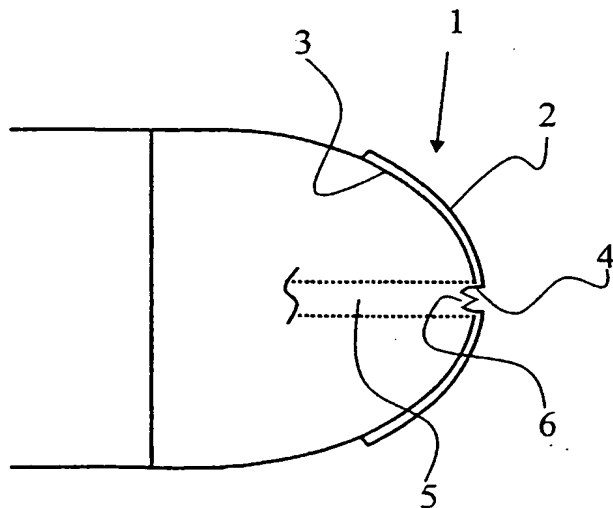
(utility model), EE, EG, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK (utility model), SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI utility model (BF), OAPI patent (BF), OAPI utility model (BJ), OAPI patent (BJ), OAPI utility model (CF), OAPI patent (CF), OAPI utility model (CG), OAPI patent (CG), OAPI utility model (CI), OAPI patent (CI), OAPI utility model (CM), OAPI patent (CM), OAPI utility model (GA), OAPI patent (GA), OAPI utility model (GN), OAPI patent (GN), OAPI utility model (GQ), OAPI patent (GQ), OAPI utility model (GW), OAPI patent (GW), OAPI utility model (ML), OAPI patent (ML), OAPI utility model (MR), OAPI patent (MR), OAPI utility model (NE), OAPI patent (NE), OAPI utility model (SN), OAPI patent (SN), OAPI utility model (TD), OAPI patent (TD), OAPI utility model (TG), OAPI patent (TG).

Published: with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: CONTRACEPTIVE



(57) Abstract: The present invention relates to a device for preventing transmission of body fluids between two persons during sexual relations. The device is formed of an elastic material and has a first inner side, coated with a glue contrived to fix said device to at least a part of the man's sexual organ, and a second part contrived to burst upon ejaculation.

WO 2004/043309 A1

***This Page Blank (uspto)***

Contraceptive

JC06 Rec'd PCT/10 25 MAR 2005

## TECHNICAL FIELD

- 5 The present invention relates to a device for preventing or drastically reducing the risk of transmission of infection during sexual relations.

## BACKGROUND OF THE INVENTION

- 10 A commonly discussed health problem nowadays is that of sexually transmitted diseases. This problem is not only the subject of general anxiety but is also discussed within various public bodies, for example the WHO (World Health Organization), as one of the really
- 15 major, international health problems with which the international community is faced within the immediate future. Enormous sums are being spent on finding medicines which are effective against, for example, HIV and AIDS. But other diseases also, even if not with as
- 20 drastic a progression, cost society billions of Kronor each year in healthcare and medicine costs. These diseases include, to quote just a few examples, condyloma, gonorrhea and syphilis. The diseases are both of the viral type and of the bacterial type. In
- 25 terms of bacterial diseases, it can also be stated that an ever increasing number of resistant and multiresistant strains of bacteria are developing, creating major problems for healthcare.
- 30 An increased use of condoms in intercourse has been regarded as a way of preventing increased spread of sexually transmitted diseases. Various voluntary, governmental and intergovernmental organizations are working very hard on informing and disseminating
- 35 knowledge on how sexually transmitted diseases are spread and how spreading can be prevented by the use of a condom.

Early condoms consisted of parts of the intestine of suitable animals, which could be washed and reused. The main object of older condoms was to prevent conception. A modern condom can be described as a rubber sheath which is slipped, or rolled, onto the man's erect sexual organ. As a result of the rubber being stretched when applied to the man's sexual organ, a force is generated which presses the condom against the sexual organ. Through interaction with friction forces, the condom thus remains relatively securely fixed on the sexual organ during intercourse. When the man's sexual organ, after intercourse, reduces in size, the condom is easy to remove.

For modern condoms, too, the main object is, of course, to prevent conception. However, the condom has become increasingly passed over as a contraceptive now that other types have come into being, for example the pill, mini-pill and day-after pill. Its capacity to prevent transmission of infection has thus gained increasingly in importance. The transmission of infection is essentially averted by preventing an exchange of body fluids between the man and woman during intercourse, this by enclosing the man's sexual organ in a rubber sheath.

However, the use of a condom suffers from a number of problems. To prevent the condom from rupturing during intercourse, owing to friction forces between for example, condom and walls of the vagina, the condom wall must have a certain thickness. Moreover, the condom must be stretched over essentially the whole of the man's sexual organ if it is not to risk slipping off during intercourse. This impairs the sexual experience for the man and is a feature which causes many people to stop using a condom, with an increased risk of infection by sexually transmitted diseases.

As a result of the condom being stretched over the whole of the sexual organ, it is also occasionally subjected to relatively high friction forces at the moment of penetration; for example, or during  
5 intercourse, when the side of the man's sexual organ rubs against the walls of the vagina. If the condom has not then been made sufficiently strong, it is at risk of rupturing, which can happen essentially like a balloon owing to the rubber having been stretched and  
10 the condom thus losing its preventive and protective capacity.

Another drawback with condoms according to the prior art is that if the man lingers in the woman's vagina  
15 after intercourse, or if the man's sexual organ is not fully erect throughout intercourse, the condom is at risk of sliding off when the tension forces in the rubber cease as a result of the reduced size of the sexual organ. This increases, of course, the risks of  
20 exchange of body fluids and hence conception or spreading of sexually transmitted diseases.

Also of note is the fact that if infection can be prevented from occurring in the one direction, for  
25 example it is difficult or impossible for a woman to infect a man, then the spread of sexual diseases will substantially decrease. This can be especially important in situations in which men come into contact with women who regularly have sexual relations with a  
30 large number of men, for example in a brothel operation. Here it is especially important for the man to protect himself against sexually transmitted diseases.

### 35 SUMMARY OF THE INVENTION

The present invention offers a new type of contraceptive which tackles or severely reduces the aforementioned problems.

With a device according to claim 1, a contraceptive is provided which is free from the drawbacks which have been described above. The fact that a glue is used to  
5 fix the device to the penis prevents the contraceptive from sliding off and the fact that the device is contrived to burst upon ejaculation obviates the need for a sperm-collecting pouch.

10 According to a first preferred embodiment, the contraceptive according to the invention is fixed only to a front part of a glans. The sexual experience is hence minimally impaired, whilst a reasonable level of protection is maintained for sexually transmitted  
15 diseases from the woman to the man.

According to a second preferred embodiment, the contraceptive is fixed to essentially the whole of the glans, in which case a somewhat better protective  
20 effect is obtained.

According to a further embodiment, the glue is designed to fix to human skin and to maintain its adhesiveness when the glue is exposed to the fluids which occur  
25 naturally in humans and especially in the vagina and on the penis during intercourse. These fluids comprise various types of secretions and seminal fluid, but also blood and saliva. The glue is further contrived to lose its adhesiveness, or be dissolved, when a liquid or  
30 substance is applied which does not occur naturally in the human body. Such a liquid might be especially made for the purpose, for example a solvent of the dimethyl ketone type, or a liquid which is normally easily available, for example ethanol.

35

According to yet another embodiment, the glue is contrived to lose its adhesiveness after a period. This can be especially expedient if there is no liquid available for dissolving the glue.

## BRIEF DESCRIPTION OF FIGURES

Figures 1a and 1b show in diagrammatic representation a  
5 contraceptive according to a preferred embodiment of  
the invention.

## PREFERRED EMBODIMENTS

10 Figure 1a shows in diagrammatic representation a  
contraceptive 1 according to one embodiment of the  
invention, in which a first part 2 has an inner side 3  
which is coated with a glue. The glue is of such a type  
that it fixes on human skin, cf. plaster, and is not  
15 dissolved by body fluids, such as blood, urine, seminal  
fluid, etc. A second part 4 comprises a stiffer  
material contrived to be introduced into the man's  
urethra 5. The second part 4 has a somewhat rounded  
shape for easier introduction into the urethra. At the  
20 end of the second part 4 there is a fragile membrane 6.  
The membrane 6 is designed to burst upon ejaculation,  
whereupon the seminal fluid is freely able to leave the  
urethra 5, as is shown in Figure 1b. The introduction  
of the thin membrane 6 into the urethra means that it  
25 is protected during intercourse and only bursts upon  
ejaculation. Since a stiffer part 4 extends at least a  
little into the urethra 5, the outer parts of the  
urethra 5 and the top of the glans are also protected  
after the membrane 6 has burst. No further penetration  
30 of body fluids into the urethra 5 will occur.

At the prospect of intercourse, the contraceptive 1 is  
placed on the glans, whereupon the glue disposed on the  
inner side 3 fixes to the skin of the glans and  
35 prevents the contraceptive from falling off. The  
contraceptive can be fixed both in the non-erect and in  
the erect state.

According to one aspect of the invention, a protective film is seated on the inner side 3 to cover the glue. The protective film is removed immediately prior to the contraceptive 1 being applied to the penis. According to a second aspect of the invention, the inner side 3 is coated with a first component of a two-component glue. In this case, too, a protective film can be expedient in order to protect said first component from being inadvertently removed from the inner side 3. A second component of said two-component glue is contrived to be applied to the man's glans. The two components are contrived to create a strong adhesion upon contact with each other, in known fashion. In this way, the contraceptive 1 is fixed to the man's glans.

The glue is dissolved by dipping the penis in or coating it with a solvent, for example dimethyl ketone, methanol or ethanol. Ethanol is perhaps most suitable in this case, since it is generally close to hand and is often sold in shops which stay open all night.

According to another aspect, the glue can also be contrived to be adhesive only for a limited period, in which case the contraceptive 1 thus, after a time, falls off by itself. This time must, of course, be substantially longer than normal intercourse.

Figure 2 shows a contraceptive 7 according to a second embodiment of the invention. According to this embodiment, a first part 8 is larger and is contrived to cover essentially the whole of the glans of the man's sexual organ. A larger surface is herein obtained for fixing of the contraceptive 7.



## CLAIMS

1. A device for preventing transmission of body fluids between two persons, at least one of whom is male, during sexual relations, said device is formed of an elastic material and said device has an inner side (3), at least a part of which is coated with a glue provided to fix said device to the man's sexual organ, characterized in that at least a second part of said device consists of a material which is provided to rupture upon ejaculation.
2. The device as claimed in claim 1, wherein said second part comprises a first, stiffer part, provided to at least partially be situated in the man's spermatic duct, and a second, more brittle part provided to burst upon ejaculation, thereby enabling the man's seminal fluid to flow freely through said device.
3. The device as claimed in claim 2, wherein the inner side (3) of the first part is formed as a substantially flat or weakly bending disk having an outer circumference which is less than a normal-sized erect glans and which, in the middle, merges into said second part (4), and in which said first part (2) is provided to be fixed over the mouth of the spermatic canal on said glans.
4. The device as claimed in claim 2, wherein said first part (5) is essentially as large as a normal-sized glans and at one end merges into said second part, and in which said first part (5) is provided to be fixed over the mouth of the spermatic canal on said glans.
5. The device as claimed in claim 1, wherein said glue retains its fastening capacity under the

action of normal body fluids and is dissolved upon application of a liquid which does not normally occur naturally in humans.

- 5    6.    The device as claimed in claim 5, wherein said liquid is an organic solvent.
7.    The device as claimed in claim 6, wherein said liquid is ethanol.
- 10    8.    The device as claimed in claim 1, wherein said glue is of the two-component type, in which said inner side is coated with a first component which is non-adhesive and in which a second component is
- 15    provided to be coated on a part of the man's sexual organ, and wherein application of said inner side to said part of the man's sexual organ fixes the device to the man's sexual organ.

20

/

1/1

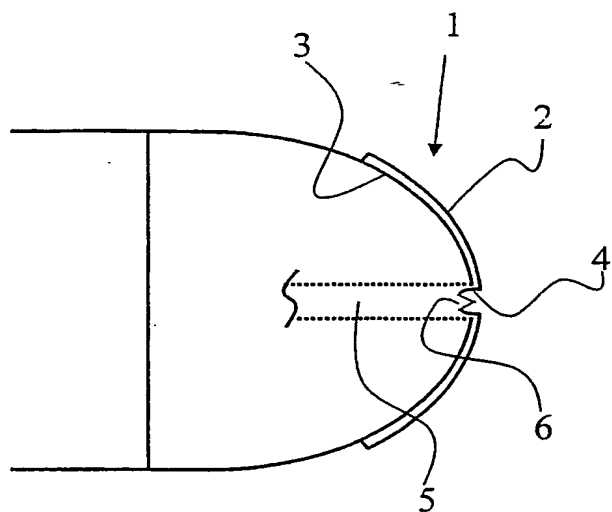


Fig 1a

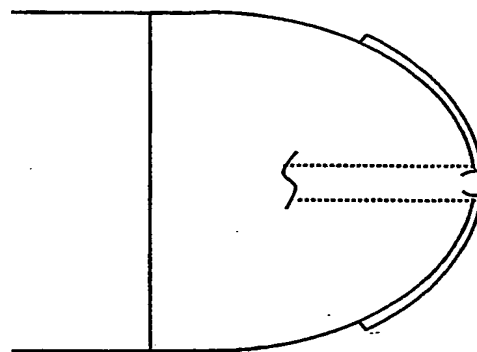


Fig 1b

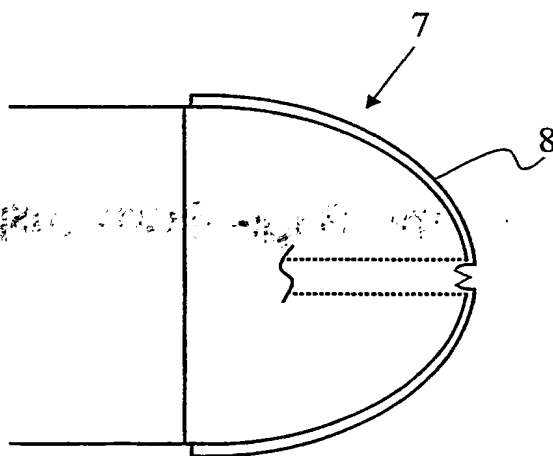


Fig 2

This Page Blank (uspto)

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 2003/001711

## A. CLASSIFICATION OF SUBJECT MATTER

IPC7: A61F 6/04

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: A61F, A61L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC INTERNAL

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3951141 A (ALBERTO KOPELOWICZ), 20 April 1976 (20.04.1976) --	1-8
A	US 5458114 A (JAN E. HERR), 17 October 1995 (17.10.1995) --	1-8
A	US 6298853 B1 (RORY P. BLAKE), 9 October 2001 (09.10.2001) -- -----	1-8

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

Date of the actual completion of the international search

11 February 2004

Date of mailing of the international search report

17-02-2004

Name and mailing address of the ISA/  
Swedish Patent Office  
Box 5055, S-102 42 STOCKHOLM  
Facsimile No. +46 8 666 02 86

Authorized officer

Leif Brander/Els  
Telephone No. +46 8 782 25 00

INTERNATIONAL SEARCH REPORT  
Information on patent family members

24/12/2003

International application No.

PCT/SE 2003/001711

US	3951141	A	20/04/1976	AR	198763	A	15/07/1974
				BR	7502743	A	16/03/1976
				FR	2269920	A,B	05/12/1975
				GB	1473261	A	11/05/1977
				IT	1058301	B	10/04/1982
				JP	50159193	A	23/12/1975

---

US	5458114	A	17/10/1995	NONE
----	---------	---	------------	------

---

US	6298853	B1	09/10/2001	NONE
----	---------	----	------------	------

---